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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/523,604

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Janos Veres

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EXAMINER

RALEIGH, DONALD L

ART UNIT

PAPER NUMBER

2879

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/523,604	<b>Applicant(s)</b> VERES ET AL.	
	<b>Examiner</b> DONALD L. RALEIGH	<b>Art Unit</b> 2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 October 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>10/09/2009, 10/26/2009</u> .                                  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submissions filed on 10/09/2009 and 10/26/2009 have been entered.

### ***Information Disclosure Statement***

The information disclosure statements (IDS) submitted on 10/09/2009 and 10/26/2009 were filed after the mailing date of the notice of allowance on 09/14/2009. The submissions are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 3, 10, 14 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro et al (JP 2000-021577) in view of Umeda (JP 2002-208490).**

**Regarding Claim 1**, Tadokoro discloses, at least in drawing 1, a method of forming an OLED (title) element or display having two or more OLED layers, one of which is an electroluminescent layer(4), which method comprises providing a blocking layer (6) that prevents conduction and movement of any charge into the electroluminescent layer (4) by printing with an ink that prevents conduction and movement of any charge into the electroluminescent layer (4)(see abstract, “solution” lines 10-12 (prevent electric field concentration)) in a desired pattern(shown in dwg. 1) between two of the OLED layers (between the anode 3 and the EL layer (4)), whereby, in use, conduction across the OLED element or display is reduced in the area of the pattern (¶ [0008], lines 1-2, light is not emitted in that area), wherein the blocking layer (6) is located between the electroluminescent layer (4) and the anode (3)(¶ [0007], lines 4-6) of the OLED element or display.

Tadokoro fails to disclose that the charge blocking layer is printed.

Umeda teaches in at least figure 5, screen printing a charge blocking layer (4)(¶ [0008], lines 1-5) to control the thickness of the layer.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to utilize the screen printing method of Umeda, in the device of Tadokoro, to control the thickness of the charge blocking layer.

**Regarding Claim 3,** Tadokoro discloses in figure 1, a method of forming an OLED element or display wherein the blocking layer (6) is located between an electroluminescent layer (4) and the anode (3) of the OLED element or display.

**Regarding Claim 10,** Tadokoro fails to exemplify a method of forming an OLED element or display wherein the ink is deposited by screen printing.

Umeda teaches a method of forming an OLED element or display wherein the ink is deposited by screen printing (¶ [0007, lines 3-5) to control the thickness of the layer.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the screen printing of Umeda, in the device of Tadokoro, to control the thickness of the layer.

**Regarding Claim 14,** Tadokoro fails to exemplify a method of forming an OLED element or display wherein the OLED layer(s) to be deposited are independently applied by a printing technique selected from screen printing.

Umeda teaches a method of forming an OLED element or display wherein the OLED layer(s) to be deposited are independently applied by a printing technique selected from screen printing (¶ [0007], lines 3-5) to control the thickness of the layer.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the screen printing of Umeda, in the device of Tadokoro, to control the thickness of the layer.

**Regarding Claim 16,** Tadokoro discloses an OLED element or display obtainable by a method (¶ [0006], insulating layer is formed) .

**Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro(577) in view of Umeda (490) and further in view of Pennaz (US Patent No. 6,922,020, previously cited).**

**Regarding Claim 2**, Tadokoro, as modified by Umeda, fails to exemplify the method of forming an OLED element or display wherein the ink is coloured to increase contrast.

In the same field of endeavor, Pennaz teaches a method of forming an OLED element or display wherein the ink is coloured to increase contrast. (Column 7, lines 12-13 using bluish green and white ink.) in order to emit white light or a desired color (Col.7, lines 5-8).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the coloured ink as taught by Pennaz into the method of forming an OLED element, as taught by Tadokoro, as modified by Umeda, in order to emit white light or a desired color.

**Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro (577) in view of Umeda (490) and further in view of Kawase (WO/2002/061837).**

**Regarding Claim 4**, Tadokoro discloses a blocking layer pattern but fails to disclose a method of forming an OLED element or display wherein the blocking layer pattern comprises a multiplicity of discrete points of ink .

Kawase teaches in an OLED (¶ [0004], line 1) using ink-jet printing to form a pattern that comprises a multiplicity of discrete points of ink (¶ [0008], lines 1-5) to create a predefined pattern without the need for etching.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the ink-jet printing method of Kawase, in the device of Tadokoro, as modified by Umeda, to be able create a predefined pattern without the need for etching.

**Regarding Claim 6**, Tadokoro, as modified by Umeda, fails to exemplify a method of forming an OLED element or display wherein the pattern comprises regions with different densities of the discrete points.

Kawase teaches in an OLED (¶ [0004], line 1) using ink-jet printing to form patterns which comprise regions with different densities of the discrete points (¶ [0004], lines 4-10) to be able create a predefined pattern without the need for etching.

It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to incorporate the ink-jet printing method of Kawase, in the device of Tadokoro, as modified by Umeda, to be able create a predefined pattern without the need for etching.

**Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro(577) in view of Umeda (490) and Kawase (WO/2002/061837) and further in view of Narang (US Patent No. 6,855,378, previously cited).**

**Regarding Claim 5**, Tadokoro, as modified by Umeda and Kawase, fails to exemplify the method of forming an OLED element or display wherein the discrete points of ink are less than about 100 um in size.

In the same field of endeavor, Narang teaches in Column 2, lines 23-27 the ink printing of particles of 3-50 um in size in order to be able to print many layers on top of one another (Column 2, lines 18-19). Even though Narang teaches that the conduction characteristics are not excellent, the method is available.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the printing of particles in the above range, as taught by Narang into the method of forming an OLED, as taught by Tadokoro, as modified by Umeda and Kawase, in order to be able to print many layers on top of one another.

**Claims 7-8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro (577) in view of Umeda (490) and further in view of Morii (US Patent No. 7,300,686, previously cited).**

**Regarding Claims 7 and 8**, Tadokoro, as modified by Umeda, fails to exemplify the method of forming an OLED element or display wherein the ink is insoluble in the medium used to deposit underlying and/or overlying OLED layers.



In the same field of endeavor, Morii teaches in Column 8, lines 25-32 using an insoluble ink and solvent that will not re-dissolve the layer beneath it.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the insoluble ink of Morii into the method of forming an OLED as taught by Tadokoro, as modified by Umeda, in order not to re-dissolve the layer beneath it.

**Regarding Claim 11**, Tadokoro, as modified by Umeda, fails to exemplify the method of forming an OLED element or display wherein the ink is deposited by ink-jet printing.

In the same field of endeavor, Morii teaches in Column 7, lines 2-6 ink-jet printing of an OLED element (electrode) due to the refinement and ease with which the patterning can be accomplished (Column 1, lines 29-32).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the method of ink-jet printing as taught by Morii into the method of forming an OLED, as taught by Tadokoro, as modified by Umeda, due to the refinement and ease with which the patterning can be accomplished.

**Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro (577) in view of Umeda (490) and further in view of Hyman (US PG Pub. No. 2003/0035917, previously cited).**

**Regarding Claim 9**, Tadokoro, as modified by Umeda, fails to exemplify the method of forming an OLED element or display wherein the ink further comprises a colorant, a polymeric binder and/or functional additives.

Hyman teaches in Paragraph [0267], line 5 an OLED element wherein the ink (Paragraph [0268] line 10 (ink-jet printing)) further comprises a colorant, a polymeric binder (Paragraph [0268], lines 1-3 (polymer and colorant) in order to create desired aesthetic and/or utilitarian effects in inventive images.(Paragraph [0266], lines 1-4).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the colorant and polymeric binder as taught by Hyman into the method of forming an OLED, as taught by Tadokoro, as modified by Umeda, in order to create desired aesthetic and/or utilitarian effects in inventive images.

**Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro (577) in view of Umeda (490) and further in view of Murasko et al (US PG Pub. No. 2003/0015962, previously cited).**

**Regarding Claim 12**, Tadokoro, as modified by Umeda , fails to exemplify the method of forming an OLED element or display wherein the ink blocking layer is thicker than the OLED layer(s) subsequently deposited onto it.

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In the same field of endeavor, Murasko teaches in an OLED (Paragraph [0039](Claim 4) wherein the ink block layer (Paragraph [0017] teaches printing (ink) of a blocking layer (dielectric) is thicker than (Paragraph [0031], lines 12-13 (100 um)) the OLED layer(s) subsequently deposited onto it. (Paragraph [0034] lines 9-11 teaches that an electrode layer (105) is printed subsequently to the dielectric layer and Paragraph [0035], lines 13-16 teaches that the thickness of this layer (105) may be 2 x 10<sup>-4</sup> inches (5.08 μm) which is thinner than the dielectric layer. Although the ink blocking layer of Murasko is not specified as a charge blocking layer, it would actually block charges as a dielectric.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the thicker blocking layer of Murasko into the method of fabricating an OLED of Tadokoro, as modified by Umeda , in order to provide additional charge blocking capabilities.

**Regarding Claim 13**, Tadokoro, as modified by Umeda , fails to exemplify the method of forming an OLED element or display wherein the ink blocking layer thickness is from 100 nm to 100 μm thick.

In the same field of endeavor, Murasko teaches where the ink (Paragraph [0017] teaches printing (ink)) blocking layer (dielectric (103), Paragraph [0031], line 12) thickness is from 100 nm to 100 μm thick (Para. [0031], line 13, 1 μm to 100 μm) which falls within above range. Although the ink blocking layer of Murasko is not specified as a charge blocking layer, it would actually block charges, as a dielectric.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the blocking layer thickness range, as taught by Murasko, into the method of forming an OLED, as taught by Tadokoro, as modified by Umeda, in order to allow flexibility in the fabrication of the OLED layers.

**Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro (577) in view of Umeda (490) and further in view of Jagannathan (US PG Pub. No. 2003/0030706, previously cited).**

**Regarding Claim 15**, Tadokoro, as modified by Umeda, fails to exemplify the method of forming an OLED element or display wherein the wetting of the ink includes a surface treatment of the layer on which the ink is deposited.

Jagannathan teaches in Paragraph [0004] lines 1-6 wherein, during ink -jet printing (Paragraph [0003], line 1) the surface of the image forming layer should be wetted so there is no coalescence of adjacent dots.

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the wetting of the ink surface as taught by Jagannathan into the method of forming an OLED, as taught by Tadokoro, as modified by Umeda, in order that there be no coalescence of adjacent dots.

**Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tadokoro (577) in view of Umeda (490) and further in view of Hanson (US PG Pub. No. 2003/0035972, previously cited).**

**Regarding Claim 17**, Tadokoro, as modified by Umeda, fails to exemplify the OLED display which, in use, produces a pseudo 3-D image.

Hanson teaches an OLED display (Paragraph [0503], line 11 (electroluminescent) light source) using ink printing ( Paragraph [0458]) which in use, produces a pseudo 3-D image, (Paragraph [0411], lines 1-3) that could be used as a decorative backing for an aquarium. (Paragraph [0411], last two lines).

It would have been obvious to one of ordinary skill in the art, at the time of the invention, to incorporate the color shifting inks, as taught by Hanson, into the method of forming an OLED, as taught by Tadokoro, as modified by Umeda, in order to create a "3-D" effect that could be used as a decorative backing for an aquarium.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DONALD L. RALEIGH whose telephone number is (571)270-3407. The examiner can normally be reached on Monday-Friday 7:30AM to 5:00PM EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimesh Patel can be reached on 571-272-2457. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Donald L Raleigh/  
Examiner, Art Unit 2879

/Peter J Macchiarolo/  
Primary Examiner, Art Unit 2879